

Fingerprint Recognition Using Genetic Algorithm And Neural

The International conference series on Computer Science, Engineering & Applications (ICCSEA) aims to bring together researchers and practitioners from academia and industry to focus on understanding computer science, engineering and applications and to establish new collaborations in these areas. The Second International Conference on Computer Science, Engineering & Applications (ICCSEA-2012), held in Delhi, India, during May 25-27, 2012 attracted many local and international delegates, presenting a balanced mixture of intellect and research both from the East and from the West. Upon a strenuous peer-review process the best submissions were selected leading to an exciting, rich and a high quality technical conference program, which featured high-impact presentations in the latest developments of various areas of computer science, engineering and applications research.

This book is an authoritative collection of contributions in the field of soft-computing. Based on selected works presented at the 6th World Conference on Soft Computing, held on May 22-25, 2016, in Berkeley, USA, it describes new theoretical advances, as well as cutting-edge

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methods and applications. Theories cover a wealth of topics, such as fuzzy logic, cognitive modeling, Bayesian and probabilistic methods, multi-criteria decision making, utility theory, approximate reasoning, human-centric computing and many others. Applications concerns a number of fields, such as internet and semantic web, social networks and trust, control and robotics, computer vision, medicine and bioinformatics, as well as finance, security and e-Commerce, among others. Dedicated to the 50th Anniversary of Fuzzy Logic and to the 95th Birthday Anniversary of Lotfi A. Zadeh, the book not only offers a timely view on the field, yet it also discusses thought-provoking developments and challenges, thus fostering new research directions in the diverse areas of soft computing.

This book presents the refereed joint proceedings of seven workshops on evolutionary computing, EvoWorkshops 2006, held in Budapest in April 2006. 65 revised full papers and 13 revised short papers presented were carefully reviewed and selected from a total of 149 submissions. The book is organized in topical sections including evolutionary bioinformatics, evolutionary computation in communications, networks, and connected systems, and more.

This book constitutes the refereed proceedings of the 4th Mexican Conference on Pattern Recognition, MCPR 2012, held in Huatulco, Mexico, in June 2012. The 31 revised full papers

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and 3 keynotes presented were carefully reviewed and selected from 64 submissions and are organized in topical sections on image processing; computer vision and image recognition; pattern recognition and neural networks; and document processing and speech recognition.

Pattern Recognition, Machine Intelligence and Biometrics

Soft Computing Applications in Optimization, Control, and Recognition

Modular Neural Networks and Type-2 Fuzzy Systems for Pattern Recognition

Selected Papers from the 6th World Conference on Soft Computing, May 22-25, 2016, Berkeley, USA

Biologically Inspired Techniques in Many-Criteria Decision Making

Artificial Intelligence Applications and Innovations. AIAI 2020 IFIP WG 12.5 International Workshops

Handbook of Fingerprint Recognition

The book presents new approaches and methods for solving real-world problems. It offers, in particular, exploratory research that describes novel approaches in the fields of Cognitive Informatics, Cognitive Computing, Computational Intelligence, Advanced Computing, Hybrid Intelligent Models and Applications. New algorithms and methods in a variety of fields are also presented, together with solution-based approaches. The topics addressed include various theoretical aspects and

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applications of Computer Science, Artificial Intelligence, Cybernetics, Automation Control Theory and Software Engineering.

This book constitutes the refereed proceedings of the First International Conference on Advanced Machine Learning Technologies and Applications, AMLTA 2012, held in Cairo, Egypt, in December 2012. The 58 full papers presented were carefully reviewed and selected from 99 initial submissions. The papers are organized in topical sections on rough sets and applications, machine learning in pattern recognition and image processing, machine learning in multimedia computing, bioinformatics and cheminformatics, data classification and clustering, cloud computing and recommender systems.

This book highlights original research and recent advances in various fields related to smart cities and their applications. It gathers papers presented at the Fourth International Conference on Smart City Applications (SCA19), held on October 2–4, 2019, in Casablanca, Morocco. Bringing together contributions by prominent researchers from around the globe, the book offers an invaluable instructional and research tool for courses on computer science, electrical engineering, and urban sciences. It is also an excellent reference guide for professionals, researchers, and academics in the field of smart cities. This book covers topics including:

- Smart Citizenship
- Smart Education
- Digital Business and Smart Governance
- Smart Health Care
- New Generation of Networks and Systems for Smart Cities
- Smart Grids and Electrical Engineering
- Smart Mobility

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• Smart Security • Sustainable Building • Sustainable Environment

This book constitutes the refereed proceedings of the 20th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, IEA/AIE 2007, held in Kyoto, Japan. Coverage includes text processing, fuzzy system applications, real-world interaction, data mining, machine learning chance discovery and social networks, e-commerce, heuristic search application systems, and other applications.

The First Footprints

Transactions on Data Hiding and Multimedia Security V
Automatic Fingerprint Recognition Systems

The Proceedings of the 4th International Conference on Smart City Applications

20th International Conference on Industrial, Engineering, and Other Applications of Applied Intelligent Systems.

IEA/AIE 2007, Kyoto, Japan, June 26-29, 2007, Proceedings

Applied Computing

19th International Conference on Intelligent Systems Design and Applications (ISDA 2019) held December 3-5, 2019

This book provides a highly accessible introduction to evolutionary computation. It details basic concepts, highlights several applications of evolutionary computation, and includes solved problems using MATLAB software and C/C++. This book also outlines some ideas on when genetic algorithms and genetic programming should be used. The most difficult part of

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using a genetic algorithm is how to encode the population, and the author discusses various ways to do this.

Soft computing includes several intelligent computing paradigms, like fuzzy logic, neural networks, and bio-inspired optimization algorithms. This book describes the application of soft computing techniques to intelligent control, pattern recognition, and optimization problems. The book is organized in four main parts. The first part deals with nature-inspired optimization methods and their applications. Papers included in this part propose new models for achieving intelligent optimization in different application areas. The second part discusses hybrid intelligent systems for achieving control. Papers included in this part make use of nature-inspired techniques, like evolutionary algorithms, fuzzy logic and neural networks, for the optimal design of intelligent controllers for different kind of applications. Papers in the third part focus on intelligent techniques for pattern recognition and propose new methods to solve complex pattern recognition problems. The fourth part discusses new theoretical concepts and methods for the application of soft computing to many different areas, such as natural language processing, clustering and optimization. This book constitutes the refereed proceedings of the International Conference on Biometrics, ICB 2007, held in Seoul, Korea, August 2007. Biometric criteria covered by the papers are assigned to face, fingerprint, iris, speech and signature, biometric fusion and performance evaluation, gait, keystrokes, and others. In addition, the volume also announces the results of the Face

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Authentication Competition, FAC 2006.

This book describes new methods for building intelligent systems using type-2 fuzzy logic and soft computing (SC) techniques. The authors extend the use of fuzzy logic to a higher order, which is called type-2 fuzzy logic.

Combining type-2 fuzzy logic with traditional SC techniques, we can build powerful hybrid intelligent systems that can use the advantages that each technique offers. This book is intended to be a major reference tool and can be used as a textbook.

Evolving Technologies for Computing, Communication and Smart World

Theory, Methods, and Applications

7th Chinese Conference, CCBR 2012, Guangzhou, China, December 4-5, 2012, Proceedings

Cognitive Informatics and Soft Computing

First International Conference, ICNC 2005, Changsha, China, August 27-29, 2005, Proceedings Part III

Soft Computing for Hybrid Intelligent Systems

Advances in Biometrics

"This set of books represents a detailed compendium of authoritative, research-based entries that define the contemporary state of knowledge on technology"--Provided by publisher.

Data hiding has been proposed as an enabling technology for securing multimedia communication. This book publishes both original and archival research results from these emerging fields. It contains a section on

forensic image analysis for crime prevention. This book addresses many-criteria decision-making (MCDM), a process used to find a solution in an environment with several criteria. In many real-world problems, there are several different objectives that need to be taken into account. Solving these problems is a challenging task and requires careful consideration. In real applications, often simple and easy to understand methods are used; as a result, the solutions accepted by decision makers are not always optimal solutions. On the other hand, algorithms that would provide better outcomes are very time consuming. The greatest challenge facing researchers is how to create effective algorithms that will yield optimal solutions with low time complexity. Accordingly, many current research efforts are focused on the implementation of biologically inspired algorithms (BIAs), which are well suited to solving uni-objective problems. This book introduces readers to state-of-the-art developments in biologically inspired techniques and their applications, with a major emphasis on the MCDM process. To do so, it presents a wide range of contributions on e.g. BIAs, MCDM, nature-inspired algorithms, multi-criteria optimization,

machine learning and soft computing.

This book reports on advanced theories and cutting-edge applications in the field of soft computing. The individual chapters, written by leading researchers, are based on contributions presented during the 4th World Conference on Soft Computing, held May 25-27, 2014, in Berkeley. The book covers a wealth of key topics in soft computing, focusing on both fundamental aspects and applications. The former include fuzzy mathematics, type-2 fuzzy sets, evolutionary-based optimization, aggregation and neural networks, while the latter include soft computing in data analysis, image processing, decision-making, classification, series prediction, economics, control, and modeling. By providing readers with a timely, authoritative view on the field, and by discussing thought-provoking developments and challenges, the book will foster new research directions in the diverse areas of soft computing.

Biometrics

**International Conference, ICB 2007, Seoul, Korea, August 27-29, 2007, Proceedings
Selected Papers from the 4th World
Conference on Soft Computing, May 25-27,
2014, Berkeley**

Intelligent Systems Design and Applications An Introduction to Theory and Applications with Matlab

International Conference on Biologically Inspired Techniques in Many-Criteria Decision Making (BITMDM-2019)

An Evolutionary Approach for Neural Networks and Fuzzy Systems

The three volume set LNCS 3610, LNCS 3611, and LNCS 3612 constitutes the refereed proceedings of the First International Conference on Natural Computation, ICNC 2005, held in Changsha, China, in August 2005 as a joint event with the Second International Conference on Fuzzy Systems and Knowledge Discovery FSKD 2005 (LNAI volumes 3613 and 3614). The program committee selected 313 carefully revised full papers and 189 short papers for presentation in three volumes from 1887 submissions. The first volume includes all the contributions related to learning algorithms and architectures in neural networks, neurodynamics, statistical neural network models and support vector machines, and other topics in neural network models; cognitive science, neuroscience informatics, bioinformatics, and bio-medical engineering, and neural network applications such as communications and computer networks, expert system and informatics, and financial engineering. The second volume concentrates on neural network applications as pattern recognition and diagnostics, robotics and intelligent control, signal processing and multi-media, and other neural network applications; evolutionary learning, artificial immune systems, evolutionary theory, membrane, molecular, DNA computing, and ant colony systems. The third volume deals with evolutionary methodology, quantum computing, swarm intelligence and

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intelligent agents; natural computation applications as bioinformatics and bio-medical engineering, robotics and intelligent control, and other applications of natural computation; hardware implementations of natural computation, and fuzzy neural systems as well as soft computing.

This book presents best selected papers presented at the International Conference on Evolving Technologies for Computing, Communication and Smart World (ETCCS 2020) held on 31 January–1 February 2020 at C-DAC, Noida, India. It is co-organized by Southern Federal University, Russia; University of Jan Wy?ykowski (UJW), Polkowice, Poland; and CSI, India. C-DAC, Noida received funding from MietY during the event. The technical services are supported through EasyChair, Turnitin, MailChimp and IAC Education. The book includes current research works in the areas of network and computing technologies, wireless networks and Internet of things (IoT), futuristic computing technologies, communication technologies, security and privacy.

This book describes recent advances in the use of fuzzy logic for the design of hybrid intelligent systems based on nature-inspired optimization and their applications in areas such as intelligent control and robotics, pattern recognition, medical diagnosis, time series prediction and optimization of complex problems. Based on papers presented at the North American Fuzzy Information Processing Society Annual Conference (NAFIPS 2017), held in Cancun, Mexico from 16 to 18 October 2017, the book is divided into nine main parts, the first of which first addresses theoretical aspects, and proposes new concepts and algorithms based on type-1 fuzzy systems. The second part consists of papers on new concepts and algorithms for type-2 fuzzy systems, and on applications of type-2 fuzzy systems in diverse areas, such as time series prediction and pattern recognition. In turn, the third part contains papers that present

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enhancements to meta-heuristics based on fuzzy logic techniques describing new nature-inspired optimization algorithms that use fuzzy dynamic adaptation of parameters. The fourth part presents emergent intelligent models, which range from quantum algorithms to cellular automata. The fifth part explores applications of fuzzy logic in diverse areas of medicine, such as the diagnosis of hypertension and heart diseases. The sixth part describes new computational intelligence algorithms and their applications in different areas of intelligent control, while the seventh examines the use of fuzzy logic in different mathematic models. The eight part deals with a diverse range of applications of fuzzy logic, ranging from environmental to autonomous navigation, while the ninth covers theoretical concepts of fuzzy models

The two volumes LNCS 11982 and 11983 constitute the proceedings of the 11th International Symposium on Cyberspace Safety and Security, CSS 2019, held in Guangzhou, China, in December 2019. The 61 full papers and 40 short papers presented were carefully reviewed and selected from 235 submissions. The papers cover a broad range of topics in the field of cyberspace safety and security, such as authentication, access control, availability, integrity, privacy, confidentiality, dependability and sustainability issues of cyberspace. They are organized in the following topical sections: network security; system security; information security; privacy preservation; machine learning and security; cyberspace safety; big data and security; and cloud and security;

Advances in Computer Science, Engineering & Applications
EvoWorkshops 2006: EvoBIO, EvoCOMNET, EvoHOT,
EvoIASP, EvoINTERACTION, EvoMUSART, and EvoSTOC,
Budapest, Hungary, April 10-12, 2006, Proceedings
Innovations in Smart Cities Applications Edition 3
Proceeding of CISC 2017
Biometric Recognition

Bio-Inspired Hybrid Intelligent Systems for Image Analysis and Pattern Recognition

Cyberspace Safety and Security

An authoritative survey of intelligent fingerprint-recognition concepts, technology, and systems is given. Editors and contributors are the leading researchers and applied R&D developers of this personal identification (biometric security) topic and technology. Biometrics and pattern recognition researchers and professionals will find the book an indispensable resource for current knowledge and technology in the field.

This book constitutes the refereed proceedings of the 7th Chinese Conference on Biometric Recognition, CCBR 2012, held in Guangzhou, China, in December 2012. The 46 revised full papers were carefully reviewed and selected from 80 submissions. The papers address the problems in face, iris, hand biometrics, speaker, handwriting, gait, soft biometrics, security and other related topics, and contribute new ideas to research and development of reliable and practical solutions for biometric authentication.

Bio-Inspired Hybrid Intelligent Systems for Image Analysis and Pattern Recognition comprises papers on diverse aspects of bio-inspired models, soft computing and hybrid intelligent systems. The articles are divided into four main parts. The first one consists of papers that propose new fuzzy and bio-inspired models to solve general problems. The second part deals with the main theme of modular neural networks in pattern recognition, which are basically papers using bio-inspired techniques. The third part contains papers that apply hybrid intelligent systems to the problem of time series analysis and prediction, while the fourth one shows papers dealing with bio-inspired models in optimization and robotics applications. An edited book in which both theoretical and application aspects are covered.

This book highlights recent research on intelligent systems and nature-inspired computing. It presents 62 selected papers from the 19th International Conference on Intelligent Systems Design and

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Applications (ISDA 2019), which was held online. The ISDA is a premier conference in the field of computational intelligence, and the latest installment brought together researchers, engineers and practitioners whose work involves intelligent systems and their applications in industry. Including contributions by authors from 33 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of Computer Science and Engineering.

Proceedings of the Second International Conference on Computer Science, Engineering and Applications (ICCSEA 2012), May 25-27, 2012, New Delhi, India, Volume 1

Recent Developments and the New Direction in Soft-Computing Foundations and Applications

Biometric Systems

11th International Symposium, CSS 2019, Guangzhou, China, December 1–3, 2019, Proceedings, Part II

First International Conference, AMLTA 2012, Cairo, Egypt, December 8-10, 2012, Proceedings

Theory and Applications

4th Mexican Conference, MCPR 2012, Huatulco, Mexico, June 27-30, 2012. Proceedings

This book constitutes the refereed proceedings of the 5th International Conference on Image Analysis and Recognition, ICIAR 2008, held in Póvoa do Varzim, Portugal, in June 2008. The 110 revised full papers presented together with 2 invited papers were carefully reviewed and selected from 226 submissions. The papers are organized in topical sections on image restoration and enhancement, image and video segmentation, non-linear image processing, image and video coding and encryption, indexing and retrieval,

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computer vision, feature extraction and classification, shape representation and matching, object recognition, character recognition, texture and motion analysis, tracking, biomedical image analysis, biometrics, face recognition, and a special session on recent advances in multimodal biometric systems and applications.

Biometrics such as fingerprint, face, gait, iris, voice and signature, recognizes one's identity using his/her physiological or behavioral characteristics. Among these biometric signs, fingerprint has been researched the longest period of time, and shows the most promising future in real-world applications. However, because of the complex distortions among the different impressions of the same finger, fingerprint recognition is still a challenging problem.

Computational Algorithms for Fingerprint Recognition presents an entire range of novel computational algorithms for fingerprint recognition. These include feature extraction, indexing, matching, classification, and performance prediction/validation methods, which have been compared with state-of-art algorithms and found to be effective and efficient on real-world data. All the algorithms have been evaluated on NIST-4 database from National Institute of Standards and Technology (NIST). Specific algorithms addressed include: -Learned template

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based minutiae extraction algorithm, -Triplets of minutiae based fingerprint indexing algorithm, -Genetic algorithm based fingerprint matching algorithm, -Genetic programming based feature learning algorithm for fingerprint classification, -Comparison of classification and indexing based approaches for identification, -Fundamental fingerprint matching performance prediction analysis and its validation. Computational Algorithms for Fingerprint Recognition is designed for a professional audience composed of researchers and practitioners in industry. This book is also suitable as a secondary text for graduate-level students in computer science and engineering.

This monograph describes new methods for intelligent pattern recognition using soft computing techniques including neural networks, fuzzy logic, and genetic algorithms. Hybrid intelligent systems that combine several soft computing techniques are needed due to the complexity of pattern recognition problems. Hybrid intelligent systems can have different architectures, which have an impact on the efficiency and accuracy of pattern recognition systems, to achieve the ultimate goal of pattern recognition. This book also shows results of the application of hybrid intelligent systems to real-world problems of face, fingerprint, and voice

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recognition. This monograph is intended to be a major reference for scientists and engineers applying new computational and mathematical tools to intelligent pattern recognition and can be also used as a textbook for graduate courses in soft computing, intelligent pattern recognition, computer vision, or applied artificial intelligence. This book describes hybrid intelligent systems using type-2 fuzzy logic and modular neural networks for pattern recognition applications. Hybrid intelligent systems combine several intelligent computing paradigms, including fuzzy logic, neural networks, and bio-inspired optimization algorithms, which can be used to produce powerful pattern recognition systems. Type-2 fuzzy logic is an extension of traditional type-1 fuzzy logic that enables managing higher levels of uncertainty in complex real world problems, which are of particular importance in the area of pattern recognition. The book is organized in three main parts, each containing a group of chapters built around a similar subject. The first part consists of chapters with the main theme of theory and design algorithms, which are basically chapters that propose new models and concepts, which are the basis for achieving intelligent pattern recognition. The second part contains chapters with the main theme of using type-2 fuzzy models and modular neural networks

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with the aim of designing intelligent systems for complex pattern recognition problems, including iris, ear, face and voice recognition. The third part contains chapters with the theme of evolutionary optimization of type-2 fuzzy systems and modular neural networks in the area of intelligent pattern recognition, which includes the application of genetic algorithms for obtaining optimal type-2 fuzzy integration systems and ideal neural network architectures for solving problems in this area.

Hybrid Intelligent Systems for Pattern Recognition Using Soft Computing

Image Analysis and Recognition

Type-2 Fuzzy Logic: Theory and Applications

Proceedings of ETCCS 2020

New Trends in Applied Artificial Intelligence

Nature-Inspired Design of Hybrid Intelligent Systems

Recent Developments and New Direction in Soft-Computing Foundations and Applications

This book describes recent advances on hybrid intelligent systems using soft computing techniques for diverse areas of application, such as intelligent control and robotics, pattern recognition, time series prediction and optimization complex problems. Soft Computing (SC) consists of several intelligent computing paradigms, including fuzzy logic, neural networks and bio-inspired optimization algorithms, which can be used to produce powerful hybrid intelligent systems. The book is organized in five main parts, which contain a group of

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papers around a similar subject. The first part consists of papers with the main theme of type-2 fuzzy logic, which basically consists of papers that propose new models and applications for type-2 fuzzy systems. The second part contains papers with the main theme of bio-inspired optimization algorithms, which are basically papers using nature-inspired techniques to achieve optimization of complex optimization problems in diverse areas of application. The third part contains papers that deal with new models and applications of neural networks in real world problems. The fourth part contains papers with the theme of intelligent optimization methods, which basically consider the proposal of new methods of optimization to solve complex real world optimization problems. The fifth part contains papers with the theme of evolutionary methods and intelligent computing, which are papers considering soft computing methods for applications related to diverse areas, such as natural language processing, recommending systems and optimization.

We describe in this book, new methods and applications of hybrid intelligent systems using soft computing techniques. Soft Computing (SC) consists of several intelligent computing paradigms, including fuzzy logic, neural networks, and evolutionary algorithms, which can be used to produce powerful hybrid intelligent systems. The book is organized in five main parts, which contain a group of papers around a similar subject. The first part consists of papers with the main theme of intelligent control, which are basically papers that use hybrid systems to solve particular problems of control. The second part contains papers with the main theme of pattern recognition, which are basically papers using soft computing techniques for achieving pattern recognition

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in different applications. The third part contains papers with the themes of intelligent agents and social systems, which are papers that apply the ideas of agents and social behavior to solve real-world problems. The fourth part contains papers that deal with the hardware implementation of intelligent systems for solving particular problems. The fifth part contains papers that deal with modeling, simulation and optimization for real-world applications.

"Pattern Recognition, Machine Intelligence and Biometrics" covers the most recent developments in Pattern Recognition and its applications, using artificial intelligence technologies within an increasingly critical field. It covers topics such as: image analysis and fingerprint recognition; facial expressions and emotions; handwriting and signatures; iris recognition; hand-palm gestures; and multimodal based research. The applications span many fields, from engineering, scientific studies and experiments, to biomedical and diagnostic applications, to personal identification and homeland security. In addition, computer modeling and simulations of human behaviors are addressed in this collection of 31 chapters by top-ranked professionals from all over the world in the field of PR/AI/Biometrics. The book is intended for researchers and graduate students in Computer and Information Science, and in Communication and Control Engineering. Dr. Patrick S. P. Wang is a Professor Emeritus at the College of Computer and Information Science, Northeastern University, USA, Zijiang Chair of ECNU, Shanghai, and NSC Visiting Chair Professor of NTUST, Taipei. Healthcare sectors often deal with a large amount of data related to patients' care and hospital workforce management. Mistakes occur, and the impending results

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are disastrous for individuals' personal identity information. However, an innovative and reliable way to safeguard the identity of individuals and provide protection of medical records from criminals is already in effect. Design and Implementation of Healthcare Biometric Systems provides innovative insights into medical identity theft and the benefits behind biometrics technologies that could be offered to protect medical records from hackers and malicious users. The content within this publication represents the work of ASD screening systems, healthcare management, and patient rehabilitation. It is designed for educators, researchers, faculty members, industry practitioners, graduate students, and professionals working with healthcare services and covers topics centered on understanding the practical essence of next-generation healthcare biometrics systems and future research directions. 5th International Conference, ICIAR 2008, Póvoa de Varzim, Portugal, June 25-27, 2008, Proceedings Advances in Natural Computation Evolutionary Intelligence Recent Advances on Hybrid Approaches for Designing Intelligent Systems Computational Algorithms for Fingerprint Recognition Modern Methods and Implementation Strategies Advanced Machine Learning Technologies and Applications The focus of the Asian Applied Computing Conference (AACC) is primarily to bring the research in computer science closer to practical applications. The conference is aimed primarily at topics that have immediate practical benefits. By hosting the conference in the developing nations in Asia we aim to provide a forum for engaging both the academic and

the commercial sectors in that region. The first conference “Information Technology Prospects and Challenges” was held in May 2003 in Kathmandu, Nepal. This year the conference name was changed to “Asian Applied Computing Conference” to reflect both the regional- and the application-oriented nature of the conference. AACC is planned to be a themed conference with a primary focus on a small set of topics although other relevant applied topics will be considered. The theme in AACC 2004 was on the following topics: systems and architectures, mobile and ubiquitous computing, soft computing, man machine interfaces, and innovative applications for the developing world. AACC 2004 attracted 184 paper submissions from around the world, making the reviewing and the selection process tough and time consuming. The selected papers covered a wide range of topics: genetic algorithms and soft computing; scheduling, - timization and constraints solving; neural networks and support vector machines; natural language processing and information retrieval; speech and signal processing; networks and mobile computing; parallel, grid and high-performance computing; innovative - plications for the developing world; cryptography and security; and machine learning. Papers were primarily judged on originality, presentation, relevance and quality of work. Papers that had clearly demonstrated results were given preference.

This book highlights recent advances in the design of hybrid intelligent systems based on nature-inspired optimization and their application in areas such as intelligent control and robotics, pattern recognition,

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time series prediction, and optimization of complex problems. The book is divided into seven main parts, the first of which addresses theoretical aspects of and new concepts and algorithms based on type-2 and intuitionistic fuzzy logic systems. The second part focuses on neural network theory, and explores the applications of neural networks in diverse areas, such as time series prediction and pattern recognition. The book's third part presents enhancements to meta-heuristics based on fuzzy logic techniques and describes new nature-inspired optimization algorithms that employ fuzzy dynamic adaptation of parameters, while the fourth part presents diverse applications of nature-inspired optimization algorithms. In turn, the fifth part investigates applications of fuzzy logic in diverse areas, such as time series prediction and pattern recognition. The sixth part examines new optimization algorithms and their applications. Lastly, the seventh part is dedicated to the design and application of different hybrid intelligent systems.

This book explains the theory and application of evolutionary computer vision, a new paradigm where challenging vision problems can be approached using the techniques of evolutionary computing. This methodology achieves excellent results for defining fitness functions and representations for problems by merging evolutionary computation with mathematical optimization to produce automatic creation of emerging visual behaviors. In the first part of the book the author surveys the literature in concise form, defines the relevant terminology, and offers historical and philosophical motivations for the

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key research problems in the field. For researchers from the computer vision community, he offers a simple introduction to the evolutionary computing paradigm. The second part of the book focuses on implementing evolutionary algorithms that solve given problems using working programs in the major fields of low-, intermediate- and high-level computer vision. This book will be of value to researchers, engineers, and students in the fields of computer vision, evolutionary computing, robotics, biologically inspired mechatronics, electronics engineering, control, and artificial intelligence.

This book provides a framework for robust and novel biometric techniques, along with implementation and design strategies. The theory, principles, pragmatic and modern methods, and future directions of biometrics are presented, along with in-depth coverage of biometric applications in driverless cars, automated and AI-based systems, IoT, and wearable devices. Additional coverage includes computer vision and pattern recognition, cybersecurity, cognitive computing, soft biometrics, and the social impact of biometric technology. The book will be a valuable reference for researchers, faculty, and practicing professionals working in biometrics and related fields, such as image processing, computer vision, and artificial intelligence. Highlights robust and novel biometrics techniques Provides implementation strategies and future research directions in the field of biometrics Includes case studies and emerging applications

Pattern Recognition

Second Asian Applied Computing Conference, AACC 2004, Kathmandu, Nepal, October 29-31, 2004.

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Proceedings

Fuzzy Logic in Intelligent System Design

Design and Implementation of Healthcare Biometric Systems

Applications of Evolutionary Computing

MHDW 2020 and 5G-PINE 2020, Neos Marmaras, Greece, June 5-7, 2020, Proceedings

Evolutionary Computer Vision

This book constitutes the refereed proceedings of two International Workshops held as parallel events of the 16th IFIP WG 12.5 International Conference on Artificial Intelligence Applications and Innovations, AIAI 2020, in Neos Marmaras, Greece, in June 2020: the 9th Mining Humanistic Data Workshop, MHDW 2020, and the 5th Workshop on 5G-Putting Intelligence to the Network Edge, 5G-PINE 2020.* The 6 full papers and 3 short papers presented at MHDW 2020 were carefully reviewed and selected from 16 submissions; out of the 23 papers submitted to 5G-PINE 2020, 11 were accepted as full papers and 1 as a short paper. The MHDW papers focus on topics such as recommendation systems, sentiment analysis, pattern recognition, data mining, and time series. The papers presented at 5G-PINE focus on the latest AI applications in the telecommunication industry and deal with topics such as the Internet of Things, intelligence fusion in 5G networks, and 5G media. *The workshops were held virtually due to the COVID-19 pandemic.

A major new professional reference work on fingerprint security systems and technology from leading international researchers in the field. Handbook provides authoritative and comprehensive coverage of

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all major topics, concepts, and methods for fingerprint security systems. This unique reference work is an absolutely essential resource for all biometric security professionals, researchers, and systems administrators. Biometrics are used widely in various real-life applications today. There are a number of potential biometric applications that include different areas such as personal recognition, identification, verification, and others. It may be needed for safety, security, permission, banking, crime prevention, forensics, medical applications, communication, face finding, and others. This book is specifically dedicated to biometric research, applications, techniques, tools, and algorithms that originate from different fields such as image processing, computer vision, pattern recognition, signal processing, artificial intelligence, intelligent systems, and soft computing. The main objective of this book is to provide the international community with an effective platform in the area of people identity verification and authentication from physiological and behavioral aspects. This publication provides an effective platform for helping and guiding readers, professionals, researchers, academicians, engineers, scientists, and policy makers involved in the area of biometrics. Edited by a panel of experts, this book fills a gap in the existing literature by comprehensively covering system, processing, and application aspects of biometrics, based on a wide variety of biometric traits. The book provides an extensive survey of biometrics theory, methods, and applications, making it an indispensable source of information for researchers, security experts, policy

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makers, engineers, practitioners, and graduate students. The book's wide and in-depth coverage of biometrics enables readers to build a strong, fundamental understanding of theory and methods, and provides a foundation for solutions to many of today ' s most interesting and challenging biometric problems. Biometric traits covered: Face, Fingerprint, Iris, Gait, Hand Geometry, Signature, Electrocardiogram (ECG), Electroencephalogram (EEG), physiological biometrics. Theory, Methods and Applications covered: Multilinear Discriminant Analysis, Neural Networks for biometrics, classifier design, biometric fusion, Event-Related Potentials, person-specific characteristic feature selection, image and video-based face, recognition/verification, near-infrared face recognition, elastic graph matching, super-resolution of facial images, multimodal solutions, 3D approaches to biometrics, facial aging models for recognition, information theory approaches to biometrics, biologically-inspired methods, biometric encryption, decision-making support in biometric systems, privacy in biometrics. Encyclopedia of Information Science and Technology